

8-14-1989

## Avion 1989-08-14

Embry-Riddle Aeronautical University

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London Symphony Orchestra brings a little culture to the Daytona Beach area. See story page 8

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University clarifies its tuition payment policy

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# Avion

An Award Winning College Newspaper

Volume 62, Issue 6

Embry-Riddle Aeronautical University, Daytona Beach, Florida

August 14, 1989

## President Tallman speaks to Senate

by Brian Cerni  
Campus News Editor

University President Kenneth Tallman and Chancellor Eric Doten appeared before a U.S. Senate Committee on Commerce, Science, and Transportation last Thursday in Washington to address the present and future problems of airline pilot supply and training. Other witnesses invited to the hearing included representative from the Federal Aviation Administration (FAA), Air Line Pilots Association (ALPA), American Airlines, Regional Airline Association, S.A.F.E., and The University of North Dakota. Presiding at the Aviation Subcommittee Hearing were Sen. Wendell H. Ford (D-Ky), Sen. John McCain (R-Ariz.), and Sen. J. James Exon (D-Nebr.).

President Tallman stated that military pilot attrition rates have brought the issue to the attention of the Senate Committee and the hearing was fact finding in nature. In President Tallman's address to the Committee, he stated that, "the shortage persists because currently the move from basic certification training programs (such as the one at Embry-Riddle and other universities) to the air carrier cockpit takes place only after entry level pilots meet the experience requirements imposed by the industry. Unless the fledgling pilot enters the military and gains the necessary experience, he/she really has no structured path to follow which will lead with certainty to an air carrier cockpit."

In an interview the day after the hearing, Tallman stressed that the creation of an industry wide gap filler program is necessary, and feels it should be patterned after the military, which takes pilot candidates with no time, and successfully places them in the right seat of complex aircraft at reduced hours.

The solution to this problem, Tallman said, is for the industry to set up a training program which meets performance standards set by the FAA, not high time experience requirements expressed in hours. This type of proposal would help solve the pilot supply problem by creating a relatively large pool of qualified pilot candidates without the aid of the military. President Tallman said he is totally against "the arbitrary rule that a person needs 1500 hours to fly right seat for a regional airline."

Interestingly, Captain Henry Duffy, President of ALPA, expressed a philosophy not exactly parallel to President Tallman's recommendations. "ALPA feels," Duffy said, "that a greater number of hours and experience in various appropriate types of aircraft should be specified by the FAA until better initial pilot training standards and proficiency criteria are developed and implemented for pilots who desire to fly in air carrier operations."

Duffy also stated that education in the form of a four-year Aeronautical Science type degree should be expanded to more universities in the country to help prepare more aspiring pilots for airline operations.

Ms. Karen R. Keesling, assistant secretary of the Air Force for manpower and reserve affairs, represented the military's concerns in the hearing, and stated, "Our problem is not in attracting qualified candidates, but in retaining them past their initial commitment." Because of the demand for high-time pilots in the airlines, the military is being forced into a "salary war" with the airlines, and in their view, it is a war that they cannot win. She concluded her remarks at the hearing by inviting the airline industry to work together with the Air Force in solving the pilot shortage problem.

Both President Tallman and Chancellor Doten

agreed that the industry should begin to help students finance the high cost of flight training. Because cost estimates for advanced airline flight training are upwards of \$20,000, President Tallman stated in the hearing that, "Costs could be equitably borne by all participants - industry, government, as well as the trainees." Doten added that the medical profession provides a good pattern for civil aviation; medical students can borrow large amounts of money to finance their education but they get a large return on their investment.

A model program for the industry has already been created by FlightSafety International and TWA. The program is designed to take pilots with commercial, instrument, and multiengine ratings, and 250-300 hours, and prepare them for the commuter airline environment. Considered an airline transition and advanced flight crew training program, students are versed in turbine operations, advanced aircraft systems, crew coordination, and other aspects of air carrier operations normally only

**"Costs could be equitably borne by all participants - industry, government, as well as the trainees."**

**Kenneth Tallman  
University President**

acquired through 6-8 years of experience. Although the program costs over \$13,000, FlightSafety boasts an excellent placement rating, with most graduates receiving job offers while they are still in training. The success of the program can be traced back to the fact that candidates wishing to enter are intensively screened, following criteria used by TWA to hire their own pilots. Therefore, FlightSafety looks for characteristics in a candidate which have historically been found in successful airline pilots. Even if pilots do not meet the requirements to enter the program, they are made aware of their weak areas, and can spend time sharpening their skills for future consideration.

Although Tallman feels that the Flight Safety program is a step in the right direction, he still believes that the military is the best training environment because of their structure. Once a proper civil program is established, he feels that education should be left to the university's, and advanced training to the airlines.

## Riddle Senior killed in boating accident

by Phyllis A. Saimons  
Copy Editor

Allen Martin Kotarba, 24, an Embry-Riddle senior, died Sunday, August 6, as a result of a boating accident on the Halifax River. Kotarba, Riddle student Kathleen Scholten and a small white dog reportedly fell from a 14-foot open Boston Whaler boat when it struck mile marker 46 approximately two miles north of the Port Orange Bridge at about 12:17 a.m. Sunday.

Rescue teams from the fire department and the U.S. Coast Guard arrived and found the unoccupied boat traveling in a circle. They searched the area for about an hour before locating Scholten, 27. She was taken to Halifax Medical Center where she was later released. The dog's body was spotted along the shore line Sunday but was not recovered.

Rescue helicopters from the Coast Guard and the Sheriff's Department spent the better part of Sunday searching for signs of Kotarba's body. Coast Guard and Florida Marine Patrol boats with divers resumed the search Monday. At about 8:30 Monday morning, a Florida Marine Patrol officer and a sheriff's deputy found the body about 20 yards offshore opposite 2800 South Peninsula Drive.

Kotarba was driving the boat at the time of the accident. It is thought that the boat swerved at the last

minute in an attempt to miss the marker, judging from the damaged to the boat. Life jackets were in the boat but not being used at the time of the accident.

A cooler containing 12 empty beer cans was found inside the boat. A report in the *Daytona Beach News Journal* suggested that the accident was alcohol related. The results of the investigation concerning the alcohol contributing to the accident are still on going.

Kotarba, a member of the Sigma Chi Fraternity and the Entertainment Committee, marched in Embry-Riddle's April Commencement Ceremony and was one light course short of satisfying the degree requirements for a Bachelor of Science in Aeronautical Science. He was born in Chicago and moved to Daytona Beach six years ago from LaGrange, Ill. A suggestion that Kotarba be granted a degree posthumously is also being looked into.

A memorial funeral mass was held on Wednesday at St. Paul's Catholic Church. His parents, who had come to take part in rescue efforts, were in attendance. The family would like to ask that those who would like to remember Alan please do so by making donations to the Multiple Sclerosis National Society, Central Florida Chapter, 3319 Maguire Blvd., Orlando Fla.



Allen Martin Kotarba

### Faculty profile

## Professor Heyward Sauls

by Phyllis A. Saimons  
Copy Editor

Heyward Sauls, Professor in the Department of Humanities and Social Sciences, will retire this month after 23 years as a faculty member at Embry-Riddle Aeronautical University. "I have enjoyed every minute in the classroom," said Sauls. "Associating with young people helps one keep a young outlook." Though he will miss the classroom, Sauls is sure, "I won't miss grading themes."

Sauls, originally from Hampton, S.C., earned Bachelor degrees from Furman University in Biology and Economics. He was drafted in June 1941 and was ultimately assigned to Pentagon training as an intelligence officer. He got his first teaching experience in the Intelligence School at Fort Ritchie, Maryland where he served on the faculty.

After leaving the Army, Sauls worked for Micarta Plastics, a division of Westinghouse, as a management trainee, bookkeeper, and time and study expert. He eventually became personnel manager.

Sauls was called back to active duty with the Army in 1950 when he served on the faculty of the Infantry School at Fort Benning. He served with the Ninth Corp in Korea where he was an aero photo interpreter.

After returning to his hometown, Sauls decided to teach school. He

spent a short time at Grays High School teaching typing, bookkeeping and shorthand, and at the Dartington School for Boys ("the movie Dead Poets Society reminds of that school") and he served as an academic dean of Howie Academy.



Heyward Sauls

Sauls moved to Daytona Beach in 1959 where he served as the assistant head master of Seabreeze Private School and later taught English at Daytona Beach Community College. By this time, Sauls had completed a Masters degree in English from Duke University, his speciality in American Literature.

In August 1966, Sauls became Embry-Riddle's Director of Library Services. At that time, the library was literally a large pile of books in a small

room, soon followed by a truck load of books purchased by the pound from Eglin Air Force Base.

After being responsible for the library for seven years, Sauls became a member of the faculty of the Humanities and Social Science Department. He primarily teaches Freshman English, Technical Report Writing, and American Literature. He has served on practically every committee within the University including the Faculty Council, the Academic Standards and Procedures Committee, and the Scholarships and Awards Committee. He has completed all the course work required for a doctoral degree in education from the University of Central Florida.

Sauls and his wife Virginia have two daughters, Scott and Allison, and four grandchildren. Sauls is a member of St. James Episcopal Church of Ormond Beach and serves on the Library Board of the City of Daytona Beach. He enjoys gardening ("I have an orchid collection of which I am quite proud"), bridge and traveling.

Upon retiring, the Sauls are still undecided about relocating, but still plan a busy schedule. Professor Sauls said that he plans to read, travel, learn to use his IBMPC, and continue writing. He will do volunteer work for the local libraries and for the American Cancer Society.

see SAULS, page 8



## Shuttle Columbia returns to space

by Kress Latham  
Aeronautics Editor

At approximately 8:30 a.m. on the morning of August the eighth, the Space Shuttle Columbia broke through the ground fog and ascended into orbit for the eighth time in its illustrious career.

The launch window had opened up at 7:30 a.m. and was slated to close four hours later at 11:30. During the first hour of the window, ground fog was precluding any attempts by NASA to put their shuttle in the air. During this time, a specially prepared Gulfstream II performed periodic power on approaches to the Shuttle Landing Facility, gathering information that would be needed in the event the Columbia experienced difficulties that would necessitate an emergency landing shortly after launch.

Approximately one hour into the window, the large digital clock located at the pre-launch site three miles away from

the pad, lit up at T-9 minutes and began quickly counting down.

The ground at the press site shook as Columbia lifted off, completed its roll program and carried its top secret Department of Defense payload into a cloudless sky.

At the controls was Pilot Richard N. Richards who was taking the trip for the third time. The rest of the flight crew for the STS-28 mission consisted of Commander Brewster H. Shaw and three mission specialists: David C. Leeanna, James C. Adamson and Mark N. Brown.

There had been some concern about the condition of the orbiter amongst the general public. It had been 40 months since Columbia had ventured into space.

During that time, however, Columbia had been undergoing a program of modifications and retrofits that would keep it current and capable of performing this latest task.

One subtle difference on the "new" Columbia is the presence of a small pod mounted on the vertical tail. Housed within this structure, called the SILTS pod, is an infrared camera that obtains images of the upper surfaces of Columbia's port wing and fuselage during reentry.

From these images, a temperature map is derived which gives specialists information regarding aerodynamic heating as it affects the critical tiles that shroud the orbiter's surfaces.

Another visible modification to Columbia is the presence of the new flexible reusable surface insulation blankets, similar to the ones used on *Discovery* and *Atlantis*.

But the majority of Columbia's modifications dealt with the various systems that are utilized throughout the various phases of its flight. All totalled, more than 190 alterations and modifications were affected during Columbia's period of hibernation within the cavernous confines of the Vehicle Assembly Building.

Starting from the ground up, the main landing gear underwent an extensive series of modifications.

The thickness of the main gear axle was increased to provide a stiffer configuration that reduces brake-to-axle deflections and precludes brake damage experienced in previous landings.

see COLUMBIA, page 4

### Inside the Avion this week

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Trivia:  
Next week marks the 79th anniversary of the first aircraft radio use by James McCurdy in a Curtiss biplane.



Editorial

The summer is drawing to a close, with thoughts of final exams seeping into the minds of most of us. Already conversations are turning to the fall. Walking across campus you hear fall schedule, cooler weather, football, registration, all being lamented over.

The fall will bring change here at Avion newspaper as well. The Editorship will once again change hands. With my tenure drawing to a close, I too am looking ahead. Looking ahead to changes for me and for Embry-Riddle. But, I am frightened that the winds of change that are rustling through this campus may not be blowing entirely from the right direction. Some times the winds of change that blow need to be shifted so that they bring about fair weather for the students for whom this University exists. Some time a strong voice from the students will nudge this wind in the right direction.

I challenge each and every one of you and the generations to come to make sure that the people that are spending your money and making important decisions that will affect your academic future, toe the line and do what is right for you. Stand up for your rights as students of this University and make the administration, the faculty, the SGA, the Avion and every other organization that is here to serve you give you not only your money's worth but what you deserve as well. Make them give you the best education that money can buy. If this University wants to be the Harvard of the skies then they will have to provide an education equal to its namesake.

Don't ever let them forget that it is the Student Body that this University was conceived for and it is the Student body that this University should serve. It should make itself available as a resource to the outside world and the Aviation industry, but it should only do and say what is in the best interest of you, the Student body.

It has been both a difficult and rewarding year here at the Avion, and we have managed the best that we have known how. We have met a lot of challenges head on. We have seen many historic events and have had a unique opportunity to cover them. The death of this schools founder, the student uprising in China, America's returns to space, all events that will shape the face of our nation and our campus.

The Avion has grow and changed and once again earned national recognition, I hope that your newspaper can grow and live up to a reputation that it has managed to earn, nationwide. Become involved with it also. It will show you the many fascinating sides to the industry that you have chosen. And the look will be a lot closer than you can get anywhere else.

A heartfelt thanks goes out to all of the people that helped make my time here at the Avion, memorable and fruitful. With out all of you all of the things that we accomplished would not have been possible. Also I must thank the student body of Embry-Riddle Aeronautical University. Thank you for this opportunity to serve you, so long and most of all GOOD LUCK.

David A. O'Donnell  
Editor in Chief



"THEY'RE FROM THE PRINCIPAL'S OFFICE."

Letters to the Editor

To the Editor:

In a meeting with the University Controller and the Director of Financial Services, I discussed the confusing explanation of the tuition payment program which was issued to permanent addresses a few weeks ago. In that explanation of policy, late tuition was to be assessed upon the first day of classes. The Controller stressed the importance of students paying early but I pointed out the significance of ADD/DROP changes in billing and the cumbersome addition of another deadline on the first day of classes.

The SGA representative who attended the Tuition and Fees committee said that the policy agreed upon called for no late tuition payment to be assessed until fourteen days after the start of classes if students signed an

agreement form at Student Financial Services. The original letter did not address this option.

The letter sent to permanent addresses was not shown to the Dean of Student Affairs. I requested that they consult Dean Rockett before issuing expressions of student policies in the future.

I see the lapse time for the late tuition payment charge as fair and just. Students have a lot to do on the first day of classes and adding an extra stop for them to make is in my opinion, short sighted. The Controller was very understanding of the overall benefit that the grace period offers some students.

I asked the Controller and the Director of Financial Services to re-explain the program in fuller detail and let us know all of our options. Early payment and mail in tuition payment agreements are the best way to handle tuition payment; but

no late tuition fee will be assessed until fourteen days after the start of classes this fall.

John E. Luke  
SGA Representative

ARC clients who work closely with Kiwanians from other local clubs in the area.

We are, indeed, grateful to have your support. Again, thank you.  
Sincerely,  
K. Eugene Gabriel  
Executive Director

To the Editor:

On behalf of the Association of Retarded Citizens Volusia, I would like to thank your newspaper [The Avion] group for your generous donation of over 1,000 pounds of newspapers.

In particular, I would like to thank Ray Willis, Brian Cerni, Darrell Brooks and Phyllis Salmons for their outstanding efforts in delivering these papers to us.

The proceeds from the recycled newspapers goes into our Kiwanis Aktion Club to aid them in their projects. This Club is comprised of

*Editor's note: Letters appearing in the Avion, do not necessarily reflect the opinions of the newspaper or its staff. Letters submitted may be edited for brevity and may be printed provided they are not lewd, obscene or libelous. Letter writers shall confine themselves to a single topic. All letters must be accompanied by the signature of the writer. Names may be withheld on request at the discretion of the Editor.*

Student Forum

The Avion asks: What should the U.S. response be to the hostage crisis?



Anas Al Quath

"Use intensified diplomacy to release them for the short run. And change their diplomacy for the long run."



Chris Rodecki

The situation should be handled delicately. Diplomacy should be used and military force avoided, that would only get us in more trouble."



Philip Halstead

Some kind of drastic action has to be taken very soon. Maybe it would be a good test of the new stealth bomber."



Teresa Heath

"I believe that a U.S. citizen is very important. We should take action but remember we have to take care of them."



Marnie Seblan

"I think we should take military action and not negotiate in any way."



Andrew Rosner

"The U.S. should use a special terrorist force only as a last resort for action."

Written by Gus Waterhouse

The Weekly Special

Could the Pan-Am disaster have been prevented?

by Jack Anderson and David Latta  
Syndicated Columnist

A baggage security expert who worked for Pan Am reportedly has testified in a secret de-position that he saw a warning about a possible bomb-the day after Pan Am flight 103 exploded over Lockerbie, Scotland.

Oliver Koch, who trained security people to search Pan Am luggage for bombs in Frankfurt, West Germany, was flown secretly to New York recently with a co-worker, Werner Schultz. The two men gave depositions in the lawsuit against Pan Am by the victim's families. Their depositions have been sealed by the court, but we have pieced together the details.

Koch worked for Alert Management Systems, Pan Am's security affiliate at the Frankfurt airport. In early December, the State Department sent Pan Am a letter, called the "Helsinki warning." It stemmed from an anonymous tip to the U.S. Embassy in Helsinki, and the upster said a terrorist group would try to blow up a Pan Am flight and that the bomb would be put on in Frankfurt.

The "Helsinki warning" has been the subject of much debate since the Dec. 21 crash - should Pan Am have warned its passengers? Should the State Department have publicized the warning that it privately gave to the airline and the diplomatic corps?

Koch's reported deposition will add a new twist to that debate. According to one court transcript, Koch claimed in the deposition that he did not see the letter until the day after the crash. Koch testified that his supervisor, Ulrich Weber, told him to "be quiet or you'll get in trouble." Then according to a report of Koch's deposition, Ulrich back-dated the Helsinki memo. It should have been date stamped on Dec. 9, the day it arrived at Pan Am, but Koch claims there was no date on it when he saw it the first time.

In a meeting with the U.S. District Judge Thomas Platt, the attorney for the victim's families, Leo Kreindler, say that Koch's undated copy of the warning will be entered as an exhibit wht the case comes to trial next year. The families hope to prove Pan Am is guilty of "willful misconduct."

A Pan Am spokesman told us that the Koch account "is simply not true" and that the undated memo "could be a fabrication." Koch, Schultz, and Weber have since been fired from their jobs, but Pan Am says the firings had nothing to do with the memo.

If you're planning to buy a car via the "gray market," take note of the Environmental Protection Agency's live-and-let-live attitude toward car brokers.

The gray market is the legal sale in the United States of Foreign cars bought overseas. It has been considered a cheap way to pick up a luxury European car without paying the markup: a U.S. dealership. The catch is that the car must be outfitted with the emission-control equipment in the United States.

Until this year, the EPA at least made a pretense of policing the car brokers to make sure gray market cars met U.S. pollution standards. But now the EPA is throwing away the pretense.

In a new set of regulations issued in January, the EPA lets the sellers off the hook. Gray marketeers no

longer have to post cash bonds to guarantee their cars will meet EPA standards. The sellers are supposed to test every car, but now the test results for only on in 2 cars will be checked by the EPA. Cars broken can now turn their cars over to the seller if the EPA doesn't get around to inspecting them within 15 days.

All of that spells trouble for the buyer, who may get a car that passes the regulation, but won't continue to pass emissions tests in the future without expensive retrofitting.

Althought many gray marketeers are honorable, the EPA inspector general says some of the cars are rippoffs. Some of the gray market brokers sell stolen or previously wrecked cars. Others fake the emission tests or install cheap emissions equipment that breaks down within months.

No one knows how many of the 155,527 gray market cars brought to the United States in the last five years were lemons, but the inspector general's staff says there were plenty.

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This week's staff: All at the Avion

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**Fatigue...**  
Business jets as well commercial airliners must constantly withstand the effects of pressurization and depressurization which stretch them at their seams and invite corrosion.

## NTSB cites Aloha and FAA

by Kress Latham  
Aeronautica Editor

The National Transportation Safety Board has cited deficiencies in maintenance and Federal Aviation Administration regulatory oversights as the cause of the Aloha Airlines Flight 243 accident of April 28, 1988. One person died and 65 were injured when an 18 foot section of the upper fuselage tore off of the B-737 at 24,000 feet while the aircraft was enroute from Hilo to Honolulu with 95 people on board.

After an emergency descent, the aircraft made an emergency landing at Maui's Kahului Airport.

"The National Transportation Safety Board determines that the probable cause of this accident was the failure of the Aloha Airlines' maintenance program to detect the presence of significant disbonding and fatigue damage which ultimately led to the failure of the lap joint at S-10L and the separation of the fuselage upper lobe," said the NTSB by a 4-1 vote.

Contributing to the accident, added the Safety Board, were: "The failure of Aloha Airlines management to supervise properly its maintenance force; The failure of the FAA to regulate properly Aloha Airlines' maintenance program and to assess the airlines' inspection and quality control deficiencies; The failure of FAA Airworthiness Directive 87-21-08 to require inspection of all the lap joints proposed by Boeing Service Bulletin 737-53A1039; The lack of complete terminating action (neither generated by Boeing nor required by the FAA) after the discovery of early production difficulties in the B-737 cold bond lap joint which resulted in low low-bond durability, corrosion and premature fatigue cracking."

The NTSB has determined that the failure of the fuselage was a result of multiple site fatigue cracking of

the skin adjacent to rivet holes along the upper rivet row. Tear strap disbond negated the fail-safe characteristics of the fuselage, allowing for total separation of the fuselage section during the explosive decompression.

The Board noted that the lap joint's disbonding, with resulting corrosion and probable fatigue cracking, was explicitly defined in a Boeing service bulletin, dated February 8, 1974.

"However," the Board continued, "the serious implications of multiple site damage were not realized, a permanent solution was not determined and corrective action was relegated to repetitive visual inspections."

The 737 fuselage was designed by Boeing to withstand cracks of up to 40 inches without suffering explosive decompression. The criterion was based on estimates of damage that could occur as a result of an uncontrolled engine failure that could conceivably sling shrapnel against the fuselage.

There was, however, no consideration given to the joining of adjacent cracks that might develop as a result of extended service.

According to the NTSB, Aloha Airlines was exposed to sufficient information concerning the possible deterioration of lap joint bonds to alert them to the probability of the situation to affect their aging fleet of aircraft.

It was the Board's conclusion that the managerial element of the airline failed to fully motivate and focus their force of inspectors toward the critical nature of the lap joint inspection, corrosion control and crack detection.

"However," declared the Board, "reports of fleetwide cracks received by the FAA after the Aloha Airlines' accident indicate that a similar lack of critical attention to lap joint inspection and fatigue crack detection was an industry-wide deficiency."

see NTSB, page 8

## AOPA fights Mode C veil

by Kress Latham  
Aeronautica Editor

John L. Baker, president of the 290,000 member Aircraft Owners and Pilots Association, has called for the immediate withdrawal of a new government rule requiring all aircraft to have altitude reporting equipment within 30 miles of the nation's major airports.

These altitude encoding transponders, commonly known as Mode C, were to become mandatory equipment on general aviation aircraft in the near future.

AOPA's prediction was that the new rule could jeopardize aviation safety by overloading air traffic control system capability.

This notion was confirmed in a recently released report by the U.S. General Accounting Office.

"It is shocking that the federal government would implement a rule that would compromise the safety of the flying public," said Baker at a news conference in Chicago. "We are asking the Federal Aviation Administration to immediately withdraw its 30-mile mode C veil rule until the agency has the demonstrated

**"It is shocking that the federal government would implement a rule that would compromise the safety of the flying public."**

capacity to safely handle both current and future levels of air traffic. The FAA has acted irresponsibly by implementing this rule, ignoring the concerns of many thousands of pilots, state aviation officials, congressmen, senators and other public officials."

Baker deemed "scandalous" the efforts by House Ways and Means Committee Chairman Dan Rostenkowski and others to support the Administration's effort to siphon

diverting these vital funds from their intended use is nothing short of a national scandal."

"The current situation is unfortunately symptomatic of the disease that is eroding the safety and efficiency of the entire U.S. aviation system," said the AOPA president. "The disease is lack of financial commitment and national aviation leadership - both of which are sorely needed to prevent further deterioration of the aviation system."

"For example, the GAO report found that 47 percent of the nation's terminal radar approach control (TRACON) facilities are experiencing serious processing shortfalls, resulting in the disappearance of aircraft information from controller's displays," said Baker. "Will it take an aviation disaster to insure that aviation funds are spent now and where they are needed - not held hostage to political mirror tricks?"

Baker noted that AOPA and several other aviation organizations had offered an alternative to the thirty mile Mode C veil rule, said Baker, which the FAA denied just several

see AOPA, page 8

## Lockheed flies with composites

MARIETTA, Ga., July 28 - High performance aircraft of tomorrow will require construction materials strong enough to withstand the rigors of high speeds and temperatures, yet able to provide the needed stiffness at a lower weight than currently used metals such as titanium.

Engineers at Lockheed Aeronautical Systems Company (LASC) believe those qualities needed are found in metal matrix composites and a program underway at the company is laying the groundwork for future production programs for all types of aircraft structures.

Under the \$20 million program funded by the U.S. Air Force Flight Dynamics Laboratory at Wright-Patterson Air Force Base, LASC-Georgia structures and manufacturing engineers are using existing manufacturing technology to design and construct four generic vertical stabilizers common to high-performance jet fighters.

The success of the program so far is proving that metal matrix composites (MMC) are suitable for mass production programs and that the material is ideal for use in a variety of aircraft structures, including areas where stiffness and heat resistance are critical.

"The thrust of the whole program is to demonstrate the production readiness of the material and establish a data base to support full production," said program manager Brian Cornell.

By demonstrating the suitability of existing shop methods in producing advanced MMC structures, en-



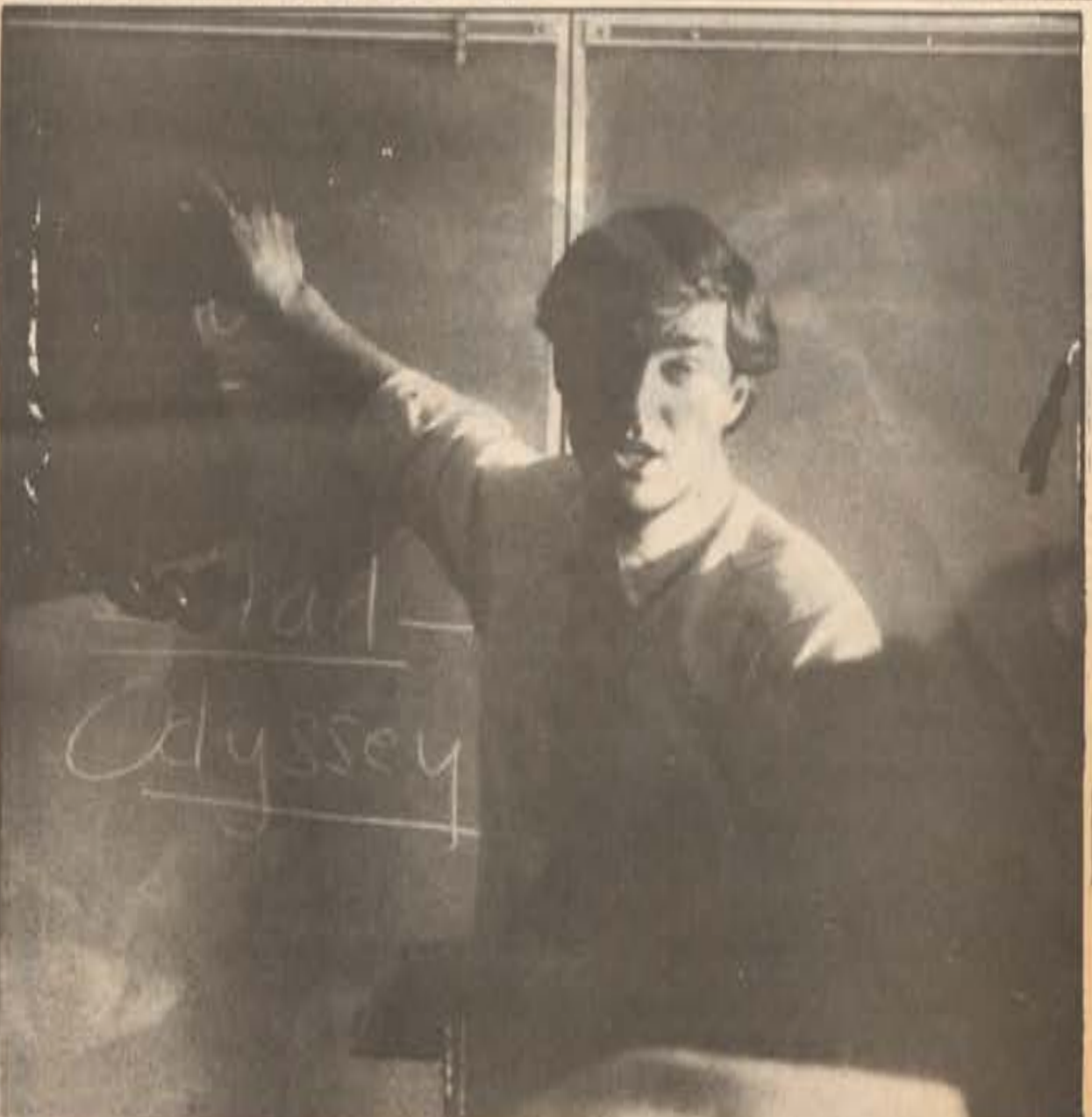
Lockheed joins

**Heavy metal...**  
Workers attach a metal matrix composite skin panel to the frame of a generic jet aircraft.

gineers hope to partially offset the higher acquisition cost of the metal matrix material over more conventional production materials.

Metal matrix composites, like resin matrix composites, combine a high-strength reinforcing material such as boron, graphite or silicon carbide with some type of holding material, or matrix. In this case, the reinforcing material is silicon carbide (SiC) and the matrix is

see METAL, page 8



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## NASA's SRB retrieval ships

### NASA Release

When the Space Shuttle's two solid rocket boosters (SRBs) burn out just over two minutes after shuttle liftoff, the rockets separate from the external tank and fall toward the Atlantic Ocean.

However, unlike SRBs previously used in the space program, the rocket casings and associated flight elements are recovered so that they can be reloaded with propellant and reused. The boosters are retrieved about 258 kilometers (160 miles) downrange by two identical retrieval ships leased by NASA.

SRB separation is at 49.7 kilometers (30.8 miles), but the spent boosters momentum continues to carry them upward for 70 more seconds to an altitude of 67 kilometers before they begin to freefall into the Atlantic.

During the fall, at 4.7 kilometers (2.9 miles) altitude, the nose cap is jettisoned, and a drogue parachute deploys from the frustum, the truncated cone-shaped structure near the forward end of the boosters. At an altitude of two kilometers (1.24 miles), the frustums separate from the boosters' forward skirts, releasing the three main parachutes on each booster that carry the main sections of the casings down to the sea.

The SRBs splashdown in an area about 11 by 17 kilometers (7 by 10 miles). Impact velocity is about 97 km/h (60.7 miles per hour). Impact time is just over seven minutes after liftoff.

Of molded steel construction, each is powered by two diesel engines that produce a total of 2,900 horsepower. At sea they can cruise at 27 km/h (17 miles per hour), and can carry fuel for a range of 11,104 km (6,900 miles). Each can carry food and water for 30 days. Ten of each ship's are operating crew and nine are retrieval specialists. Also part of each crew is a representative of KSC's STS Processing Directorate. Technical observers can also be carried.

The spent SRB casings carry radio signaling devices that allow the ships to home in on their locations. The

main parachutes and frustum drogue combination are located visually.

The main parachutes are the first items to be retrieved. Their winch lines are wound onto three of the four reels on deck. Each reel is 1.7 meters (5.5 feet) in diameter.

The drogue parachute attached to the frustum is reeled in the same way until the frustum is approximately 30 meters (100 feet) from the ship. Then the chute's shroud lines are

wound in until the frustum can be hoisted from the water by the nine metric ton (10-ton) capability deck crane.

Recovery of the SRB casings is the final retrieval operation. As the water is displaced, the casings rise so that they can be towed horizontally.

After recovery at sea, the SRBs are towed to Port Canaveral for complete dewatering and then to the disassembly location at Hangar AF on the eastern shore of the Banana River on Cape Canaveral Air Force Station. Depending upon weather conditions and sea states, the recovery and towing operations normally take two days.

The Banana River is a shallow arm of the sea which is populated by manatees, or sea cows - an endangered species. To avoid injuring the manatees, the retrieval ships use the diesel-driven waterjet stern thrusters for traveling on inland waterways. The bow thrusters can also be used.

While waterjets are not new, the Liberty Star and Freedom Star are believed to be the first and only vessels in which this propulsion system has been used to protect the ungainly sea cows from injury by conventional propellers.

The ships are also suited for other uses, including mapping the ocean floor for seismographic studies, underwater search and research. They may be used for those purposes when not required for NASA missions.

## TDRS system still up and running

by Marianne Michaels  
Space Technology Writer

There are a total of three Tracking and Data Relay Satellite's (TDRS) in orbit today. TDRS-1, TDRS-3 and TDRS-4 are currently at a distance of 22,250 miles above the Earth. TDRS-B which would have become TDRS-2 if it had reached orbit, was lost in the Challenger tragedy.

TDRS satellites operate in this geosynchronous equatorial orbit where they appear from the ground to be stationary as they rotate with the Earth once each day.

The satellites provide worldwide two-way communication between the space shuttle and mission

control through a single ground station at White Sands, New Mexico.

As a result of these satellites in orbit, the shuttle crews can enjoy communication with the ground for nearly 85 percent of the time and they will not be blacked-out from communicating with mission control during the critical descent and landing.

Prior to the launch of the TDRS satellites, NASA's fleet of unmanned satellites and manned spacecraft in low-earth orbit could communicate with Earth only when they passed over one of the several ground stations around the Earth.

During the Mercury, Apollo and

Skylab programs, communication with all Earth ground stations averaged less than 15 minutes during each 90 minute orbit.

Now with the three operational TDRS satellites, space shuttle crews can communicate with the Earth approximately 85 percent of the time.

TRW the company that built the TDRS satellites, has plans to build four more TDRS satellites which would bring the total to seven. The TDRS satellites will provide good communication with future space shuttle missions and the future Space Station Freedom.

## COLUMBIA

(continued from page 1)

Starting from the ground up, the main landing gear underwent an extensive series of modifications.

The thickness of the main gear axle was increased to provide a stiffer configuration that reduces brake-to-axle deflections and precludes brake damage experienced in previous landings.

The electronic brake control boxes were modified to balance hydraulic pressure between adjacent brakes and equalize energy applications.

These and other modifications to the brake system have been previously implemented on Discovery and Atlantis

and have allowed the brakes on these vehicles to be reflowed.

The nose wheel of Columbia has been modified to allow for the safe, high speed engagement of the steering system during rollout, even in the presence of high crosswinds and blown tires.

Many of the general purpose computers have been upgraded with units that process data many times faster, have the capacity to store a larger volume of information and weigh much less than their predecessors.

Columbia completed its mission on Monday and got its piggy back ride back to the cape sometime next week.



# AVION

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yourself. Communication skills are a requirement for any job, in any career. The Avion teaches you to succeed in the career of life.

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To register, visit our office upstairs in the University Center.

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## Composite course offered

A study of aircraft composites from the viewpoint of the maintenance technician is scheduled for Monday through Friday, August 21-25, at Embry-Riddle Aeronautical University.

Center for Professional Programs Director Patricia Corcoran said attendees to the five-day course, "Will obtain a basic understanding of the materials processes and repair methods used with composite structures."

"The course," she said, "will include practical application of fabrication and repair of composite components. Activities will be conducted in the university's Samuel Goldman Aircraft Maintenance Technology Center."

Corcoran said the course is geared to aviation technicians who possess a basic understanding of aircraft structural materials and repair. A Federal Aviation Administration airframe license is not required for the course,

she said, and no prior knowledge of aircraft composites is necessary.

The instructor will be Embry-Riddle assistant professor Michael J. Williams of the university's Aviation Maintenance Technology Department. Williams, a licensed airframe and powerplant (A&P) mechanic, holds a Master of Aviation Management degree and a BS degree in Professional Aeronautics with an area of concentration in Aircraft Maintenance Technology.

Tuition fee is \$975. Further information may be obtained by contacting the Center for Professional Programs at (904) 239-6187.

Embry-Riddle Aeronautical University is a private, independent institution with an enrollment of about 13,000 full-time and part-time students in Daytona Beach, Fla.; Prescott, Ariz.; and at 100 College of Continuing Education locations throughout the world.



Photo by Dave Wainhouse

### Skyrod...

The university has acquired four new Moonoy 201's to replace the aging Cutlass RG's. These welcome additions to the fleet are being utilized in upper level flight courses.

## Grace period reinstated

by Brian Corni  
Campus News Editor

After further consideration of the new deferred tuition payment policy, the University has reversed its decision and decided to reinstate the two week grace period granted to students in the past. University Controller Ward Mead admitted that "there was some lack of clarity with the policy" because the University wanted to avoid setting a specific date when students would be charged with deferred fees. A letter has now been sent to students with their tuition bill stating, "The late payment fee and services charges referred to in the payment agreement will only be assessed to those accounts not paid by September 15, 1989." As before, tuition is still due the first day of class.

**"There was some lack of clarity with the policy..."**  
Ward Mead  
University Controller

Mead expressed concern over the rumor that the policy was an attempt on the University's part to eliminate Add/Drop. Mead said, "It was never intended to be a change in policy," and explained that the change was meant to help eliminate some of the problems of the past. Students have often complained of having to wait in long lines when attempting to finalize tuition payment plans at the last minute. Because the deferred payment agreement forms are also being included with students to complete the forms ahead of time, and have the paperwork taken care of before classes start. If tuition is paid between the first day of class and September 15, the payment agreement becomes nullified, and no charges are assessed to students accounts.

SGA Representatives John Luke and Grace, page 8

## Notices

### December '89 Graduation Applications

Applications are being accepted at this time at the Registration and Records Office on the second floor of the UC annex. We will try to process as many as possible with a PRELIMINARY GRADUATION EVALUATION before this term is over.

If a prospective employer requests a transcript for a job interview, we must have a written request from you before the information can be released. Stop into the Registration and Records office for request forms. After you leave, NO REQUEST can be done without a written request and a \$2.00 fee, if an Official Transcript is needed.

### Avion needs reporters and photographers

Reporters and photographers are needed in the areas of campus news, space technology, aeronautics, sports and diversions. Writing for the Avion provides invaluable experience in writing and dealing with administration, faculty, staff and fellow students. Communication skills are the most important talent you can offer your future employer. The Avion will provide you with experience expressing yourself. Contact a member of the editorial staff for information.

### Free Tutors Available

The Mathematics and Physical Science Department provides free tutors from 10:30a.m. to 3:30p.m. weekdays in Room A-106.

### Library Hours for Summer B

Mon - Thurs	7:15a.m. - 10:00p.m.
Fri	7:15a.m. - 7:15p.m.
Sat	9:00a.m. - 6:00p.m.
Sun	1:00p.m. - 10:00p.m.

### Graduating Seniors with loans

If you have borrowed from the Perkins/National Direct Student Loan Program and anticipate degree completion during Summer B, you must complete an exit interview before leaving the university.

An exit interview is required by the U.S. Department of Education for every student loan borrower under the Perkins/NDSL Program during his/her last semester of enrollment as at least a half-time student. The purpose of the exit interview is to provide you with repayment terms for your student loans as well as benefits available to you during repayment of your loans. It is very important that you be fully aware of your Rights and Responsibilities as a student loan borrower to avoid any future possibility of default.

If you are anticipating degree completion by the end of Summer B, the group meeting is scheduled for August 10, at 10 a.m. or 3 p.m. in Davidson Theater (A-101).

You must schedule one of these sessions by calling the University Collections Office at 239-6040. If you have questions, call Sherry Cunningham, University Collections, 239-6040.

### Avion needs Sports Personnel for Fall

The Avion is in need of a sports editor and sports reporter for the Fall Semester. With Embry-Riddle's entrance into varsity sports, there is great opportunity for sports writers and photographers. Intramural sports and non-varsity team sports will give ample opportunity for publication. If interested, contact a member of the editorial staff of the Avion.

### Car Wash Facilities

The Volusia County Council has passed an ordinance restricting water consumption. In accordance with this restriction, car washing facilities at Dorm II and SAC I have been temporarily disconnected.

### FAA Written Exams

Embry-Riddle will administer FAA pilot and/or instructor exams for the following:

Exam	Questions/times allowed
1. Private Pilot-Airplane	50/6 hrs.
2. Commercial Pilot-Airplane	100/5 hrs.
3. Flight Instructor-Airplane	100/6 hrs.
4. Fundamentals of Instructing	50/4 hrs.

5. Ground Instructor-Basic	100/6 hrs.	1
6. Ground Instructor-Advanced	100/6 hrs.	1
7. Airline Transport Pilot-Airplane	100/6 hrs.	1
8. Aircraft Dispatcher	100/6 hrs.	1
9. Instrument Rating-Airplane	100/6 hrs.	6
10. Flight Instructor-Inst-Airplane	50/6 hrs.	
11. Ground Instructor-Instrument	50/6 hrs.	
12. Flight Engineer-Basic	50/6 hrs.	5
13. Flight Engineer-Turbojet-727	50/6 hrs.	
14. Flight Engineer-Turbojet/Basic-727	100/6 hrs.	

August 4 at 9:00a.m. in A-111  
August 19 at 9:00a.m. in H-113  
August 24 at 9:00a.m. in H-113

Students intending to take an FAA written exam are required to sign up in Office D-200 or call extension 6800 prior to the examination day.

At the time of the examination, the student will be required to bring a receipt from the Cashier's Office, a Written Authorization Form and present Personal Identification.

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Photographers

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## Calvin and Hobbes



## Bloom County



### Autos for sale

- 75 Firebird Formula. In great condition mechanically - body rough. Phone 253-3542.
- 1976 Window Van, Automatic, Air, Ice Box
- 1971 VW Van: Excellent body, no rust, A/C, new brakes & clutch. Graduating, must sell. Asking \$900. Call Grog after 7pm., 257-7661.
- 1985 Buick Regal Somerset: White - beige interior, 2 door, excellent condition, digital dash. Asking \$5900. Call Lynn 239-6228 (days) or 255-3404 (nights and weekends).
- Ford Tempo 1985 md. 54000 miles, great condition. P/S, P/B, radial tires, A/C. Asking \$2800. Good student car. Call 239-6117 8-5 P.M. or 441-0851 after 5 P.M.
- 1979 Honda Accord Hatchback. Runs great, 30 mpg, new exhaust. \$700 or best offer. Box 3414 or phone 252-7870 evenings.
- 1986 Corina - Red, Excellent condition \$6450. Call after 5 P.M. 1-437-2600.
- For Sale: VW BUG 1974 Reliable Transportation Must Sell \$500 Call Dick 761-0718
- 1985 Trans Am Automatic custom paint, PW, PRD, PL T-tops Tint, Digital stereo, custom wheels. Asking \$8500 Call Nick at 252-0081
- 1981 Chevy El Camino A/T, A/C, power steering, no rust, need to sell immediately. \$3100 Call Rob 673-8436
- 1986 Blue Chevrolet sport, 4 speed, only 1 owner. A/C, only 33K. Drives and looks great. \$2700 Call Rob at 673-8436
- 1977 Corvette T-top, A/C, P/W. All numbers match. Very clean, great stereo. Asking \$7800. Call Rob at 673-8436
- Sports - Ford EXP 1984, excellent condition, under 50,000 miles. Five speed, new roof, stereo/cassette player. \$4,200 or best offer. Must Sell! Call 767-3544 - ask for Tim.
- 1978 Chevy Nova, 305 Automatic, Dual Exhaust, \$750 w/hot. Call 788-2660.

### Cycles for sale

1986 GSXR 750: Low maintenance and in excellent condition! Leaving must sell! Call George at 253-1846.

Motorcycle for sale: Honda excellent on-off road bike! Great condition. \$2,100. Motorcycles Helmet. Call after 4p.m.

### Roommate

Room for rent: Best live in Port Orange. Four walking distance from bus stop. Cable, garage, disposal, microwave, and much + 1/2 utilities. Fax: 767-5917

Roommate wanted to share bath duplex. Furnished, microwave. Port Orange \$200/month + 1/3 utilities. Contact Kelly at 767-1446

Roommate needed to share 1/2 bathroom house in a great area. Prefer female, no pets. \$300 utilities, \$187.50 deposit.

Roommate wanted to share nice house, just 2 1/2 miles from school. \$200/month plus 1/3 utilities. Central A/C, washer and garage/workshop. Call Alex

Room for Rent - Spacious with attached bath. Washer, microwave, cable phone in room. New furniture. Call for more info. School available. \$300/month. Call 767-5917

Best traffic, live in style. House in Port Orange. Call for more info. \$200/month. Call 767-5917



Calvin and Hobbes



Bill Waterson



Bloom County



Berke Breathed

Autos for sale

'73 Firebird Formula. In great condition mechanically - body rough. Phone 253-3542.

1971 VW Van: Excellent body, no rust, A/C, new brakes & clutch. Graduating, must sell. Asking \$5900. Call Lynne 239-6228 (days) or 441-0851 after 5 P.M.

1985 Buick Regal Somerset: White - beige interior, 2 door, excellent condition, digital dash. Asking \$5900. Call Lynne 239-6228 (days) or 255-3404 (nights and weekends).

Ford Tempo 1985 red. 54000 miles, great condition. P/S, P/B, radial tires, A/C. Asking \$2800. Good student car. Call 239-6117 8-5 P.M. or 441-0851 after 5 P.M.

1979 Honda Accord Hatchback. Runs great, 30 mpg, new exhaust. \$700 or best offer. Box 3414 or phone 252-7870 evenings.

1986 Celica - Red, Excellent condition 56450. Call after 5 P.M. 1-437-2600.

For Sale: VW BUG 1974 Reliable Transportation. Must Sell \$380 Call Dick 761-0738

1985 Trans Am Automatic custom paint, PW, PDD, PL, T-tops. Tint. Digital stereo, many wheels. Asking \$8500 Call Nick at 352-0081

1981 Chevy III Camino A/T, A/C, power steering, no rust, need to sell immediately \$1100 Call Rob 673-8436

1986 Blue Chevrolet sport, 4 speed, only 1 owner. A/C, only 33K. Drives and looks great. \$2700 Call Rob at 673-8436

1977 Corvette T-top, A/C, P/W. All numbers match. Very clean, great stereo. Asking \$7800. Call Rob at 673-8436

Sporty - Ford EXP 1984, excellent condition, under 50,000 miles. Five speed, sun roof, stereo/cassette player. \$4,200 or best offer. Must Sell! Call 767-3544 - ask for Tina

1978 Chevy Nova, 305 Automatic, Dual exhaust, \$1500 w/bid. Call 788-2860.

1976 Window Van, \$1000 w/bid, 318, Automatic, Air. Ice Box Bed. Call 788-2860

Cycles for sale

1986 GSXR 750; Low mileage. Very well maintained and in excellent condition. Extras included! Leaving must sell. \$1200. Call George at 253-1846.

Motorcycle for sale: Honda XL 600R. Excellent on-off road bike! Only 2,600 miles. Great condition. \$2,100. Includes Baffle Motorcycle Helmet. Call Alex at 257-2027 after 4pm.

Roommates

Room for rent: Near the beach traffic and live in Port Orange. Four miles from BRAU. Walking distance from public library and bus stop. Cable, garage, central air, garbage, disposer, microwave, and dishwasher. \$195 month + 1/3 utilities. For more info contact: 767-5917

Roommate wanted to share 3 bedroom, 2 bath duplex. Furnished, washer/dryer, cable, microwave. Port Orange, quiet area. \$200/month + 1/3 utilities + \$200 deposit. Contact Kelly at 767-1466/Box 5034.

Roommate needed to share two bedroom, 1 1/2 bathroom house in a quiet neighborhood. Prefer female, no pets. \$200/month + 1/2 utilities, \$187.50 deposit.

Roommate wanted to share 3 bedroom private house, just 2 1/2 miles from school. \$200/month plus 1/3 utilities. (Usually less than \$50) plus \$150 refundable deposit. Central A/C, washer and dryer. Large garage/workshop. Call Alex at 239-0550.

Room for Rent - Spacious master bedroom with attached bath. Washer/dryer, microwave, dishwasher. Cable, ceiling fan & phone in room. New house four miles from school with neighborhood pool. Car pool to school available \$300 mo., \$100 dep. included all utilities and a double bed. Quiet, non-smoker only. Call Jeff or Carol at 760-1861.

Beat the traffic, live in style, three bedroom house in Port Orange approx. four miles south of BRAU. Walking distance from public library and bus stop. Cable T.V., dishwasher, microwave, central air, disposal, washing machine, garage. \$195 mo. 1/3 util. Call 767-5917.

Quiet, non-smoking male or female needed to share 3 bdrm, 2 bath house in a quiet Port Orange neighborhood. 4 miles from school. \$200/mo, 1/3 utilities, \$125 deposit, washer and dryer. Must like tolerant cats. Contact Paul 756-7869.

Furnished room for rent, only 1/2 mile from BRAU. Rent includes: Electric, water, heat, air, washer and dryer, cable T.V. No lease is required. Rent is only \$225/monthly. Call 253-9170.

Near Seabreeze Circle - Like new 1 & 2 bedroom apartments. Quiet in nice complex. Central heat/air. All electric kitchens. Free water and cable T.V. Laundry facilities. \$315/\$375 monthly. See manager, apt #9, rear of building 133 Kingman Ave.

Misc. for sale

FOR SALE: Apple III, like new, with graphics capability and thousands worth of software. Moving, so it must go - need the cash. Call to make me an offer! David at 258-6137, leave a message.

Townhouse for sale. Near BRAU 142 Baywood Square, Forest Lake Subdivision, off Beville Road between Clyde-Morris and I-95. One story, two bedroom, kitchen appliances, cathedral ceiling, vaulting fan, utility/laundry room, large walk-in closet. Pool, clubhouse, lake, city water, sewer, trash collection. No yard work. Central heat/air conditioning. \$53,000, call 788-6616.

For Sale by owner: Ocean West condominium has panoramic river and ocean view. 16th floor, fully furnished includes dishes linen, etc. one bedroom, one bath, walk-in closet. \$78,000 or make an offer! Golf, tennis, pool, security all included. 767-0433

Furniture for sale: Living room set, solid oak wood. Sofa, 2 end tables, coffee table, and chair. Furniture is practically brand new!! Moving, must sell. Only \$200 for the entire set. Call 258-6464.

Furniture for sale: Twin size bed for sale. In excellent condition. Asking \$50. Complete with headboard, frame, box spring, and mattress. A great deal!!! Call 258-6464.

Book for sale: Enable for CS 109. Originally \$85 will sell for \$30. Includes original floppy discs. Call 258-6464.



Far Side

Glen Larson



"Well, you can just rebuild the fort later, Harold. ... Phyllis and Shirley are coming over and I'll need the cushions."



"You know, we're just not reaching that guy."



"I can't believe it! ... One lousy little bee gets inside and you just freak out."



Furniture for sale: Queen size waterbed with headboard, heater, and mattress pad. New \$450, will sacrifice for \$110. In great condition. Original owner is selling. Call 258-6464 now!!!!

Commodore 128D for sale. Comes with printer, Magnavox color monitor, a few programs (mostly games). 7 months old. \$950 or best offer. Call Mike at 788-2411 after 6 P.M.

Furniture for sale: Microwave \$50, Queen-size bed with headboard new \$400, sell for \$225. Couch with pullout queenize bed plus big matching loveseat (4 months old) new \$450, sacrifice \$250. Call Phil 673-1942 or 239-0596 Box 4294.

Moving - Must sell! 25" color T.V., excellent condition, great picture. \$75 obo, twin bed with frame and box spring \$65. Call 780-8852. Ask for Charlie.

For sale: Technics Stereo receiver - 70 watts, remote control \$225. Technics CD player \$200 with remote. Akai tape deck \$225 with Dolby B and C. Leswin Vega D-5 speakers \$250. Advena baby II speakers \$150. JVC Hi-Fi VCR 4 head with remote \$425. Call Dave at 760-1698.

For sale: Full size Space Invaders video game. Make money off your friends. Great for Frats, or home use. Best offer or trade for daily slot machine (any condition). Call Jerry at 252-7699.

Nigel Comm. #2. \$1,800 unframed. I will show for serious buyers only. I have a price verification available. Contact Scott at 253-9666.

Modern dining table with four chairs and black glass top \$80. Call 788-0751.

Furniture for sale: Lamps \$5 each, living room chairs 2 for \$10, loveseat \$25, foot stool \$1, night stand \$5, tilt tray table \$1, coffee table \$5, metal typing table \$5; extra long twin bed \$100, dining room table \$10, upright vacuum \$25, wicker hamper \$1, straight chair \$5, magazine rack \$2, stainless steel tableware/service for 4 and serving spoons \$5. Call Harriet 239-6901 between 8-5 or 7610344 between 6-9.

For sale: Matching couch, 4 chair (den set). Good condition. \$50 or best offer. Call 756-3207.

For sale: Living room set, excellent condition! Includes couch, chair, coffee table, and two end-tables. Solid oak wood. Like new, must sell!! \$200. Call 258-6464 after 11pm.

Moving sale (must sell) Water bed, queen sized, almost new \$90. Oak desk \$50. White tile end table \$35, lamp \$25, loveseat \$60. Call 258-6552 leave message.

Graduation sale: Drafting board and kit, couch, loveseat, dinette set, desk, chair, lamp, rowing machine - as seen on T.V., T.V. Console, and stereo rack. Call 673-6492 or 238-5027 anytime.

For sale: Waterbed - kingsize with headboard, sheets, and mattress pad. \$100. Call 660-2298 or BRAU Box 5498.

16" JROC Z Wheel and 16" VR50 Eagle G.T. tire. Excellent condition - \$250 - wheel \$70 tire. Call Tim at 255-9166 or contact Box 1091.

Sears "Journey" on-off road 10 speed bicycle. Great for beach or school. \$125. A-1 condition. Contact Toby through Box G217.

Furniture for sale: Desk and lamp (oak wood) \$40, 2 kitchen chairs, excellent shape \$15, living room lamp with attached table \$20, living room chair, metal frame and cushion \$15, book stand or wall unit - excellent shape \$40, coffee table (all wood) \$15. Call 760-1339 or leave a message.

For sale: 2 Drawer metal filing cabinet \$45, Sears Kenmore doors size refrigerator \$45. Graphic tennis racket \$50. Call 257-8212 and leave your number after the beep.

Miscellaneous

Are your long distance phone bills too much? Save up to 40% over your current bill - absolutely free. Drop a note in Box 6555 for info.

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# AOPA

# METAL

# WEEKLY

(continued from page 3)  
just several weeks ago.

"Our proposal would have added an additional Mode C 'buffer zone' around the edges of current terminal control areas, offering an additional safety buffer but not overloading the ATC system," said Baker. "In addition, 1,200 airports within the newly-created Mode C veils that are now off limits to non-equipped aircraft would have remained accessible."

According to Baker, the FAA issued a special rule for the Chicago area suspending the Mode C veil rule during the Experimental Aircraft Association Convention Fly-in in Oshkosh, Wisconsin, July 23 through August 6.

"The FAA themselves have acknowledged that even during the high traffic time of this air show, suspension of the Mode C requirement below and outside the Chicago Terminal Control Area (TCA) would not compromise the safety of aircraft operations in the

affected area."

"We fail to see how the FAA can rationalize suspending the Mode C requirement at a particularly high traffic volume time and maintain that it will not compromise safety, while at the same time the agency is telling us that the normal volume of air traffic is such a hazard that the 30-mile Mode C veil rule is deemed necessary. This makes absolutely no sense and confirms the GAO's finding that the FAA has been completely ineffective in managing its capacity and performance requirements," said the AOPA president.

According to Baker, the National Air Traffic Controllers Association (NATCA) has reviewed and concurs with the GAO report, and has a diminishing level of confidence in existing computer equipment in Chicago, Dallas/Ft. Worth, Los Angeles, San Francisco, Miami and Atlanta.

## The London Symphony Orchestra brings culture to Daytona Beach

by David A. O'Donnell  
Editor in Chief

The music of all the greats, Stravinsky, Beethoven, Tchaikovsky, Chopin, Ravel and many others filled the halls of Peabody auditorium last week as the London Symphony Orchestra made their biennial swing through Daytona Beach.

The Orchestra, founded in the early 1900's, their first tour to the United States came in 1912, the group had originally planned the tour to come over on the Titanic, but a change in plans two days before the voyage saved the lives of its members. The LSO is the oldest of England's symphonies and boast a colorful and distinguished past including six consecutive trips to the Salzburg festival.

Along with their long list of distinguished guest performers the group has become better known by producing several contemporary works. The LSO is responsible for the theme to Star Wars, The Return of the Jedi, and the

theme to Superman.

The Florida International Festival brought the London Symphony to the Daytona Beach area for the first time back in the early 1960's. The festival ran for four weeks and was a major success. The show went on the next three years, until a whopping debt caused it to close in 1969. After years of public support and encouragement, and the deficit paid off the festival was revived in 1982. It has since been turned into a biennial event to keep the financial burden from becoming

to excessive.

Along with the traditional evening concerts, this year's tour featured a series of afternoon chamber performances and learning music workshops that had a flavor of the series of the 1960's.

The series provides a stylish atmosphere to the otherwise touristy Daytona Beach night life and is something that will hopefully continue for years to come.



(continued from page 3)

aluminum, although other metals such as titanium can be used.

The big draw to metal matrix is that it can perform as well as titanium but is far lighter - a critical requirement in the aircraft of tomorrow.

Two of the test articles being constructed use whisker-reinforced MMC skin panels where very short silicon carbide fibers are spread throughout the matrix in no set pattern. The other two articles employ continuous fiber-reinforced skin panels where long strands of silicon carbide fibers are arranged side-by-side in the aluminum matrix.

In all four test articles, the skins are fastened to silicon carbide fiber aluminum spars and silicon carbide whisker aluminum ribs.

From the outset, the program at LASC-Georgia has been treated like a regular production program, following standard manufacturing proce-

dures and using mostly standard fabrication equipment.

"It's ideal if you can come up with a material satisfying all the requirements and does not become a problem in the shop," said Cornell.

One deviation in the process is the use of LASC-Georgia's abrasive waterjet cutter, a machine still on the leading edge of technology.

The waterjet cutter uses a thin stream of water containing powdered garnet (the abrasive ingredient) traveling at high speed to cut cleanly through the material. The operating pressure of the waterjet for this job was 45,000 pounds per square inch.

According to David Ginburg, manufacturing project engineer, using the waterjet instead of more traditional cutting processes saved at least 500 man-hours in trimming the required skin panels and ribs.

The waterjet's computer-controlled operation allowed all 14 ribs needed per stabilizer to be cut, complete with tooling holes, in just 40 minutes.

Since the waterjet cutter leaves such a smooth edge and its motion is so precise, no additional machining of the part is necessary. By "nesting" the patterns to be cut on the sheet, there was very little waste.

Another deviation is the use of diamond-tipped drill bits to drill holes in the tailbox components, since the MMC is somewhat more abrasive

than aluminum due to the silicon carbide content. In addition to tracking the production aspect of the project, LASC-Georgia is conducting static and cyclic tests on the four stabilizers. The MMC tailbox measures 10.5 feet long, 5 feet at the root cord and 2.5 feet at the tip cord, and is almost 1/2 foot thick.

(continued from page 2)

Boris Yelstin, the popular Moscow's people's deputy to the Soviet congress, says his mentor Mikhail Gorbachev won't last long if he can't shape up the Soviet economy.

Yelstin told us in an exclusive interview in Moscow, "Even now (Gorbachev) is losing his popularity in this country. His popularity outside the country is much greater than it is inside. Within the country people don't appreciate him much."

Yelstin is brashly outspoken and it is that candor that has won him the hearts of Muscovites.

The Central Intelligence Agency, in a top-secret analysis, isn't much optimistic about Gorbachev's future. The CIA predicts that he has a two-year grace period to produce results or be ousted.

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